Evaluation of an interactive showroom to increase general knowledge about welfare technology and its potential in municipal care settings

Scandinavian Journal of Occupational Therapy

ISSN: 1103-8128 (Print) 1651-2014 (Online) Journal homepage: https://www.tandfonline.com/loi/iocc20

Evaluation of an interactive showroom to increase general knowledge about welfare technology and its potential in municipal care settings

Susanne Gustafsson & Leif Sandsjö

To cite this article: Susanne Gustafsson & Leif Sandsjö (2020): Evaluation of an interactive showroom to increase general knowledge about welfare technology and its potential in municipal care settings, Scandinavian Journal of Occupational Therapy, DOI: 10.1080/11038128.2020.1751876

To link to this article: https://doi.org/10.1080/11038128.2020.1751876

Published online: 14 Apr 2020.

SCANDINAVIAN JOURNAL OF OCCUPATIONAL THERAPY
https://doi.org/10.1080/11038128.2020.1751876

Taylor & Francis
Taylor & Francis Group

ORIGINAL ARTICLE

Evaluation of an interactive showroom to increase general knowledge about welfare technology and its potential in municipal care settings

Susanne Gustafsson[a,b] and Leif Sandsjö[c,d]

[a]Department of Health and Rehabilitation, Institute of Neuroscience and Physiology, The Sahlgrenska Academy at Gothenburg University, Gothenburg, Sweden; [b]The Gothenburg University Centre for Ageing and Health (AgeCap), Gothenburg, Sweden; [c]Department of Work Life and Social Welfare, Faculty of Caring Science, Work Life and Social Welfare, University of Borås, Borås, Sweden; [d]Division of Design & Human Factors, Department for Industrial and Materials Science, Chalmers University of Technology, Gothenburg, Sweden

ABSTRACT

Background: Welfare Technology (WT) can promote participation in activity. Thus, initiatives to support the implementation of WT products and services in municipality care settings needs to be developed and evaluated to benefit end-users.
Objective: To evaluate an interactive showroom of WT.
Material and method: Municipal employees ($n = 217$) filled in a questionnaire before and after they visited an interactive showroom of WT.
Findings: The number of participants confirming WT's potential to contribute to municipal operation areas increased in seven out of eight areas after their visits ($p < 0.05$). A statistically significant increase was also found regarding general knowledge of and confidence in WT and its potential value.
Conclusion: A visit to the interactive showroom increased the perceived general knowledge and appreciated value of WT. The perception of the possibility of implementing WT in various municipal operation areas also increased, which may contribute to the implementation of WT in municipal care settings.

ARTICLE HISTORY
Received 22 August 2019
Accepted 1 April 2020

KEYWORDS
Assistive technology; occupational justice; occupational therapy; older adult; persons with disabilities; technological development; technology transfer

Background

Engagement and participation in activities are fundamental to humans and linked to health and well-being [1]. Welfare Technology (WT) can promote participation in activity [2–5] and may therefore be a means of providing vulnerable groups in society, such as the growing older population or persons with disabilities, the opportunity for inclusion in society. When implementing WT in municipality care settings, this requires that municipality-employees have knowledge of, find possibilities with, and are able to use WT together with the end-users. Consequently, there is a need to develop and evaluate initiatives to support professionals to gain knowledge of WT and its potential in municipal care settings.

The concept of WT originates from the Nordic countries and is described by the Swedish National Board of Health and Welfare as digital technology that aims to maintain or improve safety, activity, participation or autonomy for a person that has or is at increased risk of disability [6]. Another corresponding definition states that WT is technology that strengthens its users' independence, safety, control of surroundings, independent living and social activities, regardless of age and disabilities [7]. Both definitions are in line with one of the objectives of the Swedish Health Care Act (HSL) [8], which promotes equivalent and equal healthcare for all. The Swedish Act on Support and Service for People with Certain Functional Impairments (LSS) [9] also aims to ensure that persons covered by the Act are actively involved in society, and can gain equality in living conditions. Further goals are described in the Vision on e-health 2025 [10], in which Sweden is cited as being at the forefront of digitalization with its ability to achieve equality and good health, and strengthen people's independence and participation in society. The term

CONTACT Susanne Gustafsson susanne.gustafsson@neuro.gu.se Institute of Neuroscience and Physiology, Department of Health and Rehabilitation, The Sahlgrenska Academy at the University of Gothenburg, Box 455, SE 405 30, Gothenburg, Sweden

WT is part of, and linked to, the concepts of e-health and digitization [10], where implementation of WT both satisfies and assumes people's rights. Thus, the goal of more equal healthcare and social care can be achieved [11].

In the context of occupational science, the above described goals can be linked to occupational justice [12] and the right to activity on equal terms. Occupational justice highlights the right to meaning, participation and choice, and includes all people's right to activity regardless of age, sex or disability. Group-level occupational rights are addressed in the Participatory Occupational Justice Framework (POJF) [13], a model that offers a justice perspective on occupational therapy both in practical and theoretical discussions. POJF provides a framework for how occupational therapists can work with vulnerable groups in society that are at risk of occupational injustice. It aims to highlight injustice and change the situation of groups in society through intervention, enabling participation in activity [13]. One such intervention could be to implement WT in municipality care settings in order to support the older population and persons with disabilities. But, the implementation of WT is not a straightforward process. A Swedish report [14] shows that municipalities are in favour of using WT solutions in healthcare, but that budget and lack of knowledge/competence among municipality-employees are obstacles in their implementation.

Welfare Technology is described to have potential to free up resources, giving people the opportunity to better manage healthcare needs, reduce costs, and promote research, development, and innovation [15]. There is also incipient evidence that technology-based interventions promotes instrumental activities of daily living [16], health-related quality of life [17], and mental wellbeing among older people [18]. Strong and early WT initiatives on the verge of being implemented widely include GPS alarms, eating robots, hygiene robots, medicine reminders, and supervision/(non-intruding) surveillance cameras [19]. However, the rapid development of WT can result in technostress [20], a syndrome that occurs when the person, subjected to information overload and continuous contact with digital devices, develops a state of stress. The need for municipality-employees to keep abreast of technology development and it's use, can cause anxiety, fear of change, and feelings of being out of control at work [21,22]. There are also reports of municipality-employees perceiving technological innovations as adding work to an already heavy workload [23]. The informed use of WT that can contribute to the care and rehabilitation of vulnerable groups therefore requires initiatives to disseminate available knowledge of WT and support professional development. An interactive showroom demonstrating WT products and services to municipality-employees may constitute a useful initiative for knowledge translation. This assumption is supported by a report on WT in elderly care in Sweden initiated by the government [14], were it appears that access to showrooms demonstrating WT is associated with implementation of WT solutions in municipality care settings.

Through occupational therapy practice, participation in activities can be made possible [24], which can promote occupational justice. The Occupational Therapy Intervention Process Model (OTIPM) [25] offers a structure for intervention. One of the four OTIPM intervention models is the Educational model: teaching programmes such as workshops or lectures, which are occupation-focused [26]. The Educational model fits well with interventions where knowledge translation is the goal. Knowledge translation is a dynamic and iterative process that includes the synthesis, dissemination, exchange and ethical application of knowledge to improve the health of the population, provide more effective health services and products, or to strengthen the overall health system [27]. One intervention with an occupational justice perspective, delivered according to the Educational model, and with a goal of knowledge translation is the intervention offered at AllAgeHub's interactive showroom for demonstrating WT products and services. AllAgeHub (AAH) [28] is a collaboration platform in which twelve municipalities in the Gothenburg region in the western part of Sweden participate together with academic, industrial and civic organizations in a quadruple-helix partnership [29]. AllAgeHub focuses on research, development and innovation that promotes accessible housing and assistive technology services. With the aim to promote knowledge about WT and implementing it in municipality settings, AAH offers guided group visits in an interactive showroom of WT led by an occupational therapist. The target group is wide and consists primarily of municipality-employees from all organizational levels; nurses, managers, and politicians. Students and civic associations are also included in the target group.

There are showrooms for the display of WT in different parts of the world, for instance CareWare in Denmark [30], Enabling Village in Singapore [31], and LifeTech in Australia [32]. However, we have not found any report on the impact or value of this type of interventions. As research in this area is scarce, an

evaluation of AAH's interactive showroom of WT may be a valuable contribution to the gap of information. By investigating this intervention, we can obtain an indication of its usefulness to contribute to the implementation of WT products and services. The evaluation may also provide a basis for further development of the showroom intervention and to help create future strategies for knowledge translation. Further, evaluation of occupational-therapy led interventions and strategies for knowledge translation constitute the top two prioritized research areas of occupational therapy [33]. Hence, the aim of this study was to evaluate an occupational-therapy led occupation-focused intervention consisting of a visit to an interactive showroom intended to increase general knowledge about WT products and services targeting municipality-employees. Specific research questions were; (a) What was the incentive for the participants' visit to the interactive showroom, (b) Did the visit influence participants' perceived general knowledge about, confidence in, and values of WT and, if so, how, (c) How was the visit followed-up in the participants' workplace after the visit.

Method

The intervention under study was evaluated by questionnaires, which were filled out by participants immediately before and after their visit to the interactive showroom of WT. Data collection started in January and ended in March 2018. As the questionnaire was anonymous, no ethical approval was needed according to Swedish Research Council guidelines [34].

The intervention

The intervention directed at municipality-employees was an occupational therapist guided visit to an interactive showroom displaying WT products and services in a 'touch and feel' manner. The showroom is located in a science park at Chalmers University of Technology in the centre of Gothenburg, the second largest city in Sweden. The visits are organized in groups of up to 15 people and last about two hours. During the visit, the occupational therapist guides the visitors around the showroom, presenting products and services as well as accessible housing environments and solutions, and discussing their (intended) function, utility and (potential) value, (possible) implementation, and ethical aspects. In addition, the various products found in the interactive showroom, such as an eating robot, night surveillance camera, mobile GPS alarms, fall protective floors, health monitoring apps, tele-rehabilitation, and smart home solutions can be demonstrated. There is time for questions and discussion throughout the visit as well as the opportunity for visitors to influence what is focussed on according to their own interests.

Participants

The intervention is open to employees of any of AAH's twelve collaborative municipalities, which are all within a 70 km range of the interactive showroom. AAH staff invited visitors by emailing AAH representatives in the municipalities, i.e. AAH agents (ombud). It was then up to these representatives to extend the invitation to professionals in their respective municipality, who in turn signed up for a group visit at a convenient date by registering on AAH's webpage. On arrival, visitors were asked to participate in the study after receiving an informative letter about the purpose and design of the study as well as information that participation was voluntary and anonymous. The participants of this study were consecutively included, in that all visitors from mid-January to mid-March 2018 were asked to take part as they arrived on-site. In principle, all visitors during the time period of the study did participate. A total number of 217 participants constitutes the basis for this study.

Data collection

After information about the study and the participants' giving their informed consent, a set of pre- and post-visit questionnaires were distributed in an envelope to each participant who volunteered to take part in the study. Immediately before the showroom presentation started, the pre-visit questionnaire was filled in and put back in the envelope. At the end of the showroom presentation, the post-visit questionnaire was taken out of the envelope, filled in, and then put back in the envelope, which then was posted in a collection container. It took about five minutes to complete each of the two questionnaires. The questionnaires were collected from the container and transferred to SPSS on two occasions. The first transfer included 120 participants and the second included the remaining participants, resulting in 217 pre- and post-visit questionnaire pairs which constituted the empirical data for the current study

Material

The pair of pre- and post-visit questionnaires was developed by the authors with input from the two occupational therapists conducting the showroom demonstrations. The pre-visit questionnaire, contained demographic questions and an open question about the incentive for the visit. This was followed by statements about the participant's perception regarding their general knowledge about and confidence in WT. These statements were answered on a six graded scale, from 1 (disagree) to 6 (totally agree). Finally, two multiple-choice questions followed to which the participant could answer Yes/No regarding six respectively eight response alternatives about their perception of WT and state in which municipality settings the implementation of WT could contribute to solve the welfare challenges that the municipalities face. The subsequent post-visit questionnaire followed-up on the questions in the first questionnaire, enabling pre/post paired comparisons. Two statements that could be graded from 1 to 6 were added. They concerned the participant's interest in WT after the visit and the perceived effectiveness of AAH's interactive showroom of WT. Another multiple-choice question was also added and included in this study. It concerned any plans for how the visit could be followed-up at the participant's respective workplace after the visit. Finally, an open question to capture further comments on the visit to the interactive showroom of WT was added, but is not presented in this study. Questionnaire items included in the current study are presented in Table 1.

Data analysis

Data from the questionnaires was compiled and analysed in the Statistical Package for the Social Sciences (SPSS version 25.0 IBM Corp, 2012). The answers to the question regarding the incentive for the visit were grouped into categories. When comparing data before and after the visit, Wilcoxon's rank sum test was used [35]. Dichotomisation was carried out for the six option response scales, which was coded into two response options; 'agree to a small extent' (1–3) and 'agree to a large extent' (4–6). McNemar's test was performed on binary variables. The significance level was set to $p < 0.05$. We cannot report on any external missing data, as the total number of participants during the study period is unknown. However, we feel confident to state that the response rate is close to 100% and at least above 90% as, typically all visitors during the study period filled out the questionnaires. Internal missing data is reported in the respective part of the result.

Findings

Participants

The 217 participants were between 21 and 86 years (the 86 year-old participant was a representative from a civic association), with a median of 45 years. A majority (82%) were women. Sixty-five percent of the participants had completed post-secondary education, and about a quarter of those who stated their profession were Unit managers (Enhetschefer). Furthermore, the participants had a mean total

Table 1. Questionnaire items included in the current study.

Question/Statement	Pre-visit	Post-visit
Gender man/woman/other	X	
Birth-year	X	
Profession	X	
Education	X	
Current workplace	X	
Total work experience in the municipality	X	
Work experience at current workplace	X	
What is your incentive for the visit?	X	
I have good knowledge of WT	X	X
I believe that WT can help solve the welfare challenges that the municipalities face in the next few years	X	X
WT is a good way to manage welfare challenges that the municipality face	X	X
WT is useful as an addition to prescription aids	X	X
WT can increase quality of life and independence	X	X
WT is something that the municipalities do exclusively to save money	X	X
I cannot see any benefits for the municipalities to invest in WT	X	X
WT is no solution for the welfare challenges that the municipalities face	X	X
In what areas do you think that WT can contribute to solve the welfare challenges facing municipalities?	X	X
I have become more interested in WT after the visit to AllAgeHub's interactive showroom		X
I think AllAgeHub's interactive showroom is an effective way of conveying knowledge about WT		X
How will your visit to the AllAgeHub interactive showroom be followed up at your workplace?		X

municipal work experience of 14 years. Close to three-quarters of the participants had worked in their current municipal workplace for less than five years and the mean for the entire group was five years (Table 2). During the study period covered by the questionnaires, seven out of the twelve participating municipalities in AAH's collaborative platform were represented among the participants.

Incentive for the visit

On the open question regarding the incentive for the visit to the interactive showroom of WT, the answers ($n = 179$) were grouped into five categories. Almost three-quarters of the participants (72%) replied that the incentive for their visit was to *gain more knowledge about WT*. A small percentage (5%) indicated that their incentive was to take part in opportunities with WT linked to specific activities in their respective municipality. Other participants expressed the desire to get general inspiration (11%), while a few (4%) mentioned curiosity about AAH as their reason for visiting. Eleven participants (6%) stated other varying incentives.

Table 2. Demographic characteristics of the participants in the study ($n = 217$).

Characteristics	Participants	Missing data n
Median age (range)	45 (21–86)	11
Female, *n* (%)	178 (82)	6
Education, *n* (%)		59
Secondary	56 (35)	
Post-secondary	102 (65)	
Profession, n (%)		6
Unit manager	53 (25)	
Aid assessor*	16 (8)	
Assistant nurse	46 (22)	
Operations developer**	7 (3)	
Student	15 (7)	
Occupational therapist	9 (4)	
Other	65 (31)	
Work experience at current workplace, median years (range)	5 (0–35)	30
<5 (%)	62 (72)	
6–10	23 (12)	
11–15	14 (8)	
>16	15 (8)	
Work experience in the municipality, median years (range)	14 (0–44)	23
<5 (%)	59 (30)	
6–10	35 (18)	
11–15	21 (11)	
16–20	11 (14)	
>21	51 (26)	

*Biståndsbedömare. **Verksamhetsutvecklare.

General knowledge about and confidence in WT

On the statement *I have good knowledge of WT*, about one third (31%) of all participants agreed to a large extent (response options 4–6) before the visit. After the visit, the proportion increased to 75% ($p = 0.000$). Regarding the statement *I believe that WT can help solve the welfare challenges that the municipalities face in the next few years*, 80% of participants agreed to a large extent before the visit and 88% did after the visit ($p = 0.003$). Most of the participants (85%) agreed to a large extent with the statement *I have become more interested in WT after the visit to AllAgeHub's interactive showroom*, and also the statement *I think AllAgeHub's interactive showroom is an effective way of conveying knowledge about WT* (89%) (Table 3).

Perception of the value of WT

Regarding the perception of the value of WT, participants responded whether they agreed or not with different statements. Regarding the statement that *WT is a good way to manage welfare challenges that the municipality face*, two-thirds (65%) agreed before the visit and a majority (80%) did after the visit ($p = 0.000$). In addition, there was a statistically significant difference before and after the visit regarding

Table 3. Low (1–3) respective high (4–6) extent of agreement about statements before and after the visit to the interactive showroom of WT.

	Before n (%)		After n (%)			
Statement	Low	High	Low	High	Missing n before/after	*p*-Value
I have good knowledge of WT	145 (69)	66 (31)	52 (25)	155 (75)	6/10	0.000***
I believe that WT can help solve the welfare challenges that the municipalities face in the next few years	42 (20)	165 (80)	25 (12)	184 (88)	10/8	0.003**
I have become more interested in WT after the visit to AllAgeHubs interactive showroom	–	–	31 (15)	175 (85)	–/11	–
I think AllAgeHubs interactive showroom is an effective way of conveying knowledge about WT	–	–	23 (11)	180 (89)	–/14	–

**$p \leq 0.01$. ***$p \leq 0.001$.

Table 4. Proportion of agreement (Yes) for statements about the value of WT before and after the visit to the interactive showroom of WT.

Statement	Before *n* (%)	After *n* (%)	*p*-Value
WT is a good way to manage welfare challenges that the municipality face	141 (65)	173 (80)	0.000***
WT is useful as an addition to prescribable aids	141 (65)	179 (83)	0.000***
WT can increase quality of life and independence	187 (86)	195 (90)	0.229
WT is something that the municipalities do exclusively to save money	13 (6)	18 (8)	0.383
I cannot see any benefits for the municipalities to invest in WT	2 (1)	2 (1)	–
WT is no solution for the welfare challenges that the municipalities face	6 (3)	2 (1)	0.063

***$p \leq 0.001$.

Table 5. Proportion of agreement to response options about possibilities of WT within municipal operation areas before and after the visit.

Response option/municipal operation area	Before *n* (%)	After *n* (%)	*p*-Value
Elderly care	196 (90)	207 (95)	0.019*
Elementary school	115 (53)	140 (65)	0.01*
Childcare	114 (53)	137 (63)	0.001**
Health care	155 (71)	191 (88)	0.000***
Disability care	177 (82)	196 (90)	0.003**
Dementia care	158 (73)	188 (87)	0.000***
For persons with decreased communication capacity	166 (76)	179 (82)	0.072
For persons with mental health problems	116 (53)	138 (64)	0.004**

*$p \leq 0.05$. **$p \leq 0.01$. ***$p \leq 0.001$.

the statement *WT is useful as an addition to prescription aids* ($p = 0.000$). Here, two-thirds of the participants (65%) had agreed before the visit and 83% did so after the visit. On the statement, that *WT can increase quality of life and independence*, almost all participants agreed 'to a large extent' before and after the visit. There was no statistically significant difference between perceptions before and after the visit for the three statements: *WT is something that the municipalities do exclusively to save money*, *I cannot see any benefits for the municipalities to invest in WT*, and *WT is no solution for the welfare challenges that the municipalities face*. The proportion of participants who agreed to a large extent on these statements were very low or non-existent (Table 4).

Possibilities of WT within municipal operation areas

Regarding the different municipal operation areas in which participants thought WT could be implemented to help the municipalities solve the welfare challenges they are facing, it was possible to provide up to eight predetermined response options/municipal operation areas. The proportion of 'Yes' increased for all areas after the visit with statistically significant numbers in all but one municipal operation area: *For people with decreased communication capacity* (Table 5). The total number of areas increased by 15% after the visit and the difference was statistically significant ($p = 0.000$) with a mean of 5.5 areas before and 6.4 after the visit (results not shown).

Follow-up of the visit

Regarding any planned follow-up activities after the visit to AAH's interactive showroom of WT at each participant's workplace, it was possible to fill in multiple-answer options in the questionnaire. A total of 188 participants (87%) responded to this question. The response option *Not known/not planned* gained the highest proportion of answers (56%). *Workplace meeting (APT)* and *Workgroup meeting* received 17% and 18% of answers respectively. The answering alternative *Other* was marked by 9% of the participants (results not shown).

Discussion

The result of this study showed that there was an increase in positive agreements regarding statements of general knowledge about and confidence in WT as well as the perceived value of WT among municipality-employees, after the visit to AAH's interactive showroom. A statistically significant increase was seen for both statements regarding general knowledge about and confidence in WT, for two statements regarding the perceived value of WT, and for seven out of eight municipal operation areas where WT potentially could be implemented. A majority of

participants indicated that they had no plan for follow-up activities at their workplace after the visit.

Despite the obvious shortcoming of no control group, it is fair to say that the visit positively influenced participants' perception of the usefulness of implementing WT in the municipalities. This implicates that the overall aim with AAH's interactive showroom: 'to disseminate available knowledge about and thereby support the implementation of WT in the municipalities', was attained. This assumption is strengthened by the fact that a majority of participants (72%) stated that the incentive for their visit was to gain more knowledge about WT.

The visit to the interactive showroom, i.e. the occupation-focused [26] group intervention delivered by occupational therapists, had a positive influence on the municipality-employees confidence in WT products and services. Thus, in the long run, the intervention can play a substantial role in promoting occupational justice [12] for vulnerable groups in society. The older population and persons with disabilities may be offered greater opportunities for inclusion in society, if municipality-employees have attained a higher level of general knowledge and understanding about the potential value of WT products and services. This can result in a positive attitude towards the implementation of new WT products and services in different municipal operation areas. It may also facilitate these professionals in advocating new possibilities for WT at their respective workplaces, which in turn can benefit end-users; care recipients and residents of special accommodation in the municipalities. They can also represent vulnerable groups in society (i.e. older persons) by proxy by highlighting the positive impact WT can bring to their life situation. However, more research is needed to confirm this argumentation and its assumptions.

AAH's interactive showroom of WT targets municipality-employees from all organizational levels, but it does not include the actual end-user, i.e. the senior person or person with disability. To fully utilize the potential of AAH's interactive showroom of WT to support occupational justice [12], it may be productive to redefine the target group to also include potential end-users. According to previous experiences of collaboration in the development and implementation of WT, it appears that end-users' own knowledge and experiences should be recognized and utilized. This can enable the user to gain a higher quality of life and greater autonomy [36]. The suggestion to also include potential end-users is supported by others promoting democratic dialogues with users, i.e. the Swedish Research Council for Health, Working life, and Welfare (FORTE) [37], the Swedish Association of Local Authorities and Regions (SALAR) [38], and POJF [13], which emphasizes that occupational rights are promoted by giving weight to end-users' fully-fledged partnerships with care and care providers. In order to further support participation and activity for end-users, this group should also constitute a partner in collaboration, as this further enables occupational justice.

Previous research points to the fact that the implementation of new WT in health service settings is often met by various resistance on individual, organizational, and institutional levels [21]. Resistance on an individual level could be due to several factors, among them fear of change and feelings of being out of control at work [22]. A review [39] also indicates that the implementation of WT is further complicated by lack of training and interest from municipality-employees. The intervention evaluated in this study seems to be a promising strategy for reducing resistance on an individual level, since it inspired and enhanced interest in, and the appreciated value of WT among participants. Hence, from a work environment perspective, it is also vital to support municipally-employees participation in and influence over the choice of digital solutions – as they themselves to a large extent are users of WT [40].

About one third of the participants (31%) were Unit managers (Enhetschefer). This group may be very important to reach in order to overcome resistance to the implementation of WT at an organizational level. An assumption which is confirmed by a report [36], stating that it is very important that relevant officials and politicians are involved and have good knowledge of WT because they can decide to implement the WT that can benefit the end-user. Regrettably, none of the participants during the study period were a politician, which is a disappointment since politicians are among the target groups for AAH's interactive showroom of WT. This deficiency can depend on the invitation process used, which is partly out of the control of AAH staff. This implies that there is a need to review the invitation procedure so that representation of relevant professional categories and stakeholders is granted. In addition, a special focus could be put on politicians, tentatively through a more specific invitation and specially tailored visits.

A contributing factor to the promising result of this study may have been the pedagogical approach to group intervention, the use of the Educational model in OTIPM [25]. The occupational therapist guided

the visitors around the interactive showroom, presented products and services, and discussed their function, utility and value, implementation, and ethical aspects. The latter – possibilities to discuss ethical aspects of WT – has proven especially important for municipality-employed personnel when implementing new WT in care settings [41]. In addition, visitors could touch and feel products and there was time for questions and discussion throughout the visit as well as the possibility for visitors to influence the content according to their own interests. Hoffman's [42] description of learning could be linked to the design of the group intervention. She describes the importance of the content of the intervention being planned according to the group's needs and interests, and that participants should be involved in the acquisition of knowledge and given the opportunity to try out any products and services on display themselves.

An important finding of the study was that the majority of the visitors did not have any specific plan for how to follow-up on the visit at their respective workplace. This constitute an identified barrier for knowledge translation, which may pose a threat to the effectiveness and sustainability of the intervention, and as such will be needed to be dealt with. Another difficulty could consist of a high turnover of employees at all levels in the municipality resulting in a need to constantly renew the offer of the intervention. This assumption is supported by a study [43] where a high turnover rate was found to constitute a major barrier for the implementation of WT in municipality care settings. In order to improve the quality of the occupational therapist-led group intervention, we need to not only identify barriers for knowledge translation, but also possible facilitators [44]. One facilitating strategy may be the use of booster sessions, which have been proposed as a way to maintain a higher level of intervention effect over time [45] and have been found to be effective [46,47]. Booster sessions could also constitute a means to manage the need for constant updating of knowledge and exhibition material due to the rapid development of WT and help protect against the effects of technostress. However, regarding the intervention under study, different forms of booster sessions, need to be developed and investigated.

Some methodological aspects need to be highlighted. First, regarding the study design, it is important to consider that the findings are based on a questionnaire before and after a group intervention with no control group, and that the study was completed during a time period limited to two months. The study design could have been strengthened by applying a control group, but the type of intervention under study is not suitable to study using a control group design. A more relevant addition to the study design would be to use a mixed method approach [48] with additional data sources (e.g. semi structured interviews or focus groups). However, all together nine out of 14 statement comparisons pre and post the intervention did reach statistical significance, which tells us that the intervention influenced the participants' view regarding different aspects of WT products and services – and all in a positive direction. It should also be noted that the five comparisons of statements not reaching statistical significance suffered from a floor or ceiling effect, i.e. the answers were already distributed either low or high in the pre-intervention response, which did not allow for any major changes in a 'positive' direction. This may be considered a methodological issue in terms of the choice of questionnaire items and scales, but also highlights a crucial aspect of any showroom intervention, namely how to adapt the content of what is presented at any given time to be relevant to the majority of visitors by being 'ahead' of the typical visitor, to constantly re-evaluate what should be displayed, and sort out products and services that have become well-known to a majority of the intended target group replacing them with new, not yet well-known, additions to the showroom.

Another aspect worth noticing which possibly affected the results, is the fact that five out of twelve collaborating municipalities in AAH were not represented among the visitors during the study period. This may be because the study only ran for two months and some (of the smaller) municipalities simply made their visits before or after the study period. An alternative explanation may be that personnel from more remote municipalities would have needed to set aside a full day to be able to visit the interactive showroom of WT, and that this simply made it too difficult to take part in the intervention. These observations open the door to alternative ways to arrange the interactive showroom of WT, perhaps through web-based solutions to counteract any geographical and content-related issues as discussed above.

Finally, POJF promotes 'advocacy', which refers to the assignment of spreading positive examples of completed projects, which aim to support occupational justice [13]. We hope that this study may inspire others to create projects that may promote occupational justice for vulnerable groups in the society.

Conclusion

A visit to an interactive showroom demonstrating WT products and solutions increased perceived general knowledge and value of WT among participating municipality-employees. The perception of the possibility to implement WT in various municipal operation areas also increased. The occupational therapist-led group intervention may lead to a more rapid/increased implementation of WT in the municipalities, which could benefit potential end-users. However, more research is needed to confirm this assumption. The lack of a plan for follow-up after the visit at respective workplaces opens up a need for further development and improvement of the intervention. The result also implicates a need to broaden the target group for visits in order to reinforce and pursue occupational justice for older persons and persons with disabilities.

Acknowledgements

We would like to thank the Gothenburg University Centre for Ageing and Health (AgeCap) (#2013–2300) for financing SG's contribution to this study. We also want to thank the collaboration platform AllAgeHub (www.allagehub.se), where both the Gothenburg University, University of Borås and Chalmers University of Technology are partners, for the support, Sandra Bohlin and Anna-Karin Rångeby for their participation in the data collection, and Ulrica Björner and Frida Edgren who led the group visits during the study period. Finally, we would like to thank the municipality-employed personnel who participated in this study.

Author's contributions

SG and LS were both responsible for designing the study, analysis, and drafting of the manuscript. Both authors have read and approved the final manuscript.

Disclosure statement

No potential conflict of interest was reported by the author(s).

ORCID

Susanne Gustafsson http://orcid.org/0000-0002-2036-3613

References

[1] Christiansen CH, Townsend EA. An introduction to occupation. In: Christiansen CH, Townsend EA, editors. Introduction to occupation: the art and science of living. 2nd ed. Upper Sadler River (NJ): Pearson; 2010. p. 1–34.

[2] Greenhalgh T, Wherton J, Sugarhood P, et al. What matters to older people with assisted living needs? A phenomenological analysis of the use and non-use of telehealth and telecare. Soc Sci Med. 2013;93:86–94.

[3] Fischl C, Asaba E, Nilsson I. Exploring potential in participation mediated by digital technology among older adults. J Occup Sci. 2017;24:314–326.

[4] Shishehgar M, Kerr D, Blake J. The effectiveness of various robotic technologies in assisting older adults. Health Informatics J. 2019;25:892–918.

[5] Zilberman M, Benham S, Kramer P. Tablet technology and occupational performance for older adults: a pilot study. Gerontechnology. 2016;15:109–115.

[6] Socialstyrelsen. Socialstyrelsens termbank. 2020 [cited 2020 Feb 22]. Available from: https://termbank.socialstyrelsen.se/?TermId=385&SrcLang=sv.

[7] Brynn R. Universal design and welfare technology. Stud Health Techno Inform. 2016;229:335–344.

[8] Sveriges Regering (the Swedish Gouverment). *Hälso- och sjukvårdslag*, in (SFS 2017:30), Sveriges Regering (the Swedish Gouverment), editor. Stockholm: Socialdepatementet; 2017.

[9] Sveriges Regering. *Lag om stöd och service till vissa funktionshindrade*, in (SFS 1993:387). Stockholm: Socialdepartementet; 1993.

[10] Sveriges Regering. Vision e-hälsa 2025. Stockholm: Socialdepartementet; 2016.

[11] Myndigheten för delaktighet (the Swedish agency for participation). *Välfärdsteknologi*. [Web page]; 2017 [cited 2020 Apr 7]. Available from: http://www.mfd.se/kunskapsomraden/digital-teknik/om-digital-teknik/vad-innebar-digital-teknik/valfardsteknologi/.

[12] Stadnyk RL, Townsend EA, Wilcock AA. Occupational justice, in Introduction to occupation: the art and science of living. New multidisciplinary perspectives for understanding human occupation as a central feature of individual experience and social organisation. In: Christiansen CH, Wilcock AA, editors. Pearson Health Science. New Jersey: Upper Sadle River; 2010.

[13] Whiteford G, Townsend E. Participatory occupational justice framework (POJF 2010):enabling occupational participation and inclusion. In: Kronenberg F, Pollard N, SakellariouD, editors. Occupational Therapies Without Borders. Towards an Ecology of Occupation-Based Practices, vol 2. Edinburgh: Churchill Livingstone; 2010.

[14] Modig A. *Välfärdsteknologi inom äldreomsorgen; En kartläggning av samtliga Sveriges kommuner*., in *Report No*: *12331*, H.i. (HI), Editor. 2012: Sundbyberg.

[15] Søndergård D. *Välfärdsteknologi: Verktygslåda* [Welfare Technology: Tool Box]. 2017. Internet.

[16] Patomella A-H, Lovarini M, Lindqvist E, et al. Technology use to improve everyday occupations in older persons with mild dementia or mild cognitive impairment: a scoping review. Br J Occup Ther. 2018;81:555–565.

[17] Kaptain RJ, Helle T, Patomella A-H, et al. Association between everyday technology use, activities of daily living and health-related quality of life in chronic obstructive pulmonary disease. Int J COPD. 2020;15:89–98.
[18] Forsman AK, Nordmyr J, Matosevic T, et al. Promoting mental wellbeing among older people: technology-based interventions. Health Promo Int. 2018;33:1042–1054.
[19] Statens beredning för medicinsk och social utvärdering (SBU), *Välfärdsteknik – Digitala verktyg som social stimulans för äldre personer med eller vid risk för psykisk ohälsa*., in SBU-rapport nr 268. ISBN 978-91-88437-09-9. 2017. Stockholm.
[20] La Torre G, Esposito A, Sciarra I, et al. Definition, symptoms and risk of techno-stress: a systematic review. Int Arch Occup Environ Health. 2019;92: 13–35.
[21] Nilsen ER, Dugstad J, Eide H, et al. Exploring resistance to implementation of welfare technology in municipal healthcare services – a longitudinal case study. BMC Health Serv Res. 2016;16:1–14.
[22] Berg-Beckhoff G, Nielsen G, Ladekjaer Larsen E. Use of information communication technology and stress, burnout, and mental health in older, middle-aged, and younger workers–results from a systematic review. Int J Occup Environ Health. 2017;23: 160–171.
[23] Mahoney DF. An evidence-based adoption of technology model for remote monitoring of elders' daily activities. Ageing Int. 2011;36:66–81.
[24] Townsend E, Polatajko H. Enabling Occupation II: advancing an occupational therapy vision for helath, well-being, and justice through occupation. Ottawa (ON): CAOT publication ACE; 2007.
[25] Fisher AG. Occupational therapy intervention process model – a model for planning and implementing top-down, client-centered, and occupation-based interventions. 2009. Fort Collins (CO): Three Star Press, Inc.
[26] Fisher AG. Occupation-centred, occupation-based, occupation-focused: same, same or different? Scandinavian J Occup Ther. 2014;21:S96–S107.
[27] Canadian Instititutes of Health Research. *Knowledge Translation – Definition [Internet]*. [cited 2019 May 10].
[28] AllAgeHub. AllAgeHub. Available from: https://allagehub.se.
[29] Carayannis EG, Campbell DFJ. Mode 3' and 'Quadruple Helix': toward a 21st century fractal innovation ecosystem. Int J Tech Mang. 2009; 46: 201–234.
[30] Aahus kommune. *CareWare Aarhus*. [Web Page]; 2018 [cited 2020 Feb 19]. Available from: https://careware.dk/.
[31] Enabling Village. 2020 [cited 2020 Feb 19]. Available from: https://enablingvillage.sg/.
[32] LifeTec Australia. *LifeTec*. 2020 [cited 2020 Feb 19]. Available from: https://lifetec.org.au/.
[33] Mackenzie L, Coppola S, Alvarez L, et al. International occupational therapy research priorities: A delphi study. Occup Par Health. 2017;37: 72–81.
[34] Vetenskapsrådet (Swedish Research Council). *Etik (Website with information about research ethics)*. [Webpage]; 2017 [cited 2018 Mar 23]. Available from: http://www.vr.se/etik.
[35] Altman DG. Practical statistics for medical research. London: Chapman & Hall; 1999.
[36] Lundkvist A. Välfärdslabbet: En förstudie om implementering av välfärdsteknologi. Stockholm: Välfärdslabbet[Internet]; 2014.
[37] Forskningsrådet för hälsa arbetsliv och välfärd (FORTE), *Forskarmedverkan – Forskning med och om brukarmedverkan*, in Forskning i korthet #5. 2015. Stockholm.
[38] Tahvilzadeh N. Medborgardialoger– dess kritiker och förkämpar, In: Stenberg J, editor. FRAMTIDEN ÄR REDAN HÄR Hur invånare kan bli medskapare i stadens utveckling. Göteborg: Majornas Grafiska AB; 2013.
[39] Lluch M. Healthcare professionals' organisational barriers to health information technologies—A literature review. Int J Med Inform. 2011;80:849–862.
[40] Spånt Enbuske A, Välfärdsteknik FÖR TRYGGHET, HÄLSA OCH UTVECKLING I ARBETET. Kommunal, editor. 2019. [Internet].
[41] Dorsten A-M, Sifford KS, Bharucha A, et al. Ethical perspectives on emerging assistive technologies: insights from focus groups with stakeholders in long-term care facilities. J Empirical Res Human Res Ethics. 2009;4:25–36.
[42] Hoffman T. Educational skills for practice. In: Duncan E, editor. Skills for practice in occupational therapy. London (UK): Elsevier Health Sciences; 2009. p. 157–174.
[43] Frennert S, Baudin K. The concept of welfare technology in Swedish municipal eldercare. Disab Rehabil. 2019. DOI:10.1080/09638288.2019.1661035
[44] Metzler MJ, Metz GA. Analyzing the barriers and supports of knowledge translation using the PEO model. Can J Occup Ther. 2010;77:151–158.
[45] Gustafsson S, Eklund K, Wilhelmson K, et al. Long-term outcome for adl following the health-promoting rct–elderly persons in the risk zone. Gerontologist. 2013;53:654–663.
[46] Fu SS, Roth C, Battaglia CT, et al. Training primary care clinicians in motivational interviewing: a comparison of two models. Patient Educ Counseling. 2015;98:61–68.
[47] de Boer MJ, Versteegen GJ, Vermeulen KM, et al. A randomized controlled trial of an Internet-based cognitive-behavioural intervention for non-specific chronic pain: an effectiveness and cost-effectiveness study. Euro J Pain. 2014;18:1440–1451.
[48] Onwuegbuzie AJ, Johnson RB, Collins KMT. Assessing legitimation in mixed research: a new framework. Qual Quant. 2011;45:1253–1271.